



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/987,004	11/13/2001	Tomofumi Shono	740819-687	6379

7590

08/21/2003

McDERMOTT WILL & EMERY
600 13TH ST N.W.
WASHINGTON, DC 20005-3096

EXAMINER

KEBEDE, BROOK

ART UNIT

PAPER NUMBER

2823

DATE MAILED: 08/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/987,004

Applicant(s)

SHONO ET AL.

Examiner

Brook Kebede

Art Unit

2823

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12, 14, 16 and 17 is/are rejected.
- 7) ☒ Claim(s) 13 and 15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 9.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Art Unit: 2823

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114.

Applicant's submission filed on June 19, 2003 has been entered.

Allowable Subject Matter

2. The indicated allowability of claims 1-12 is withdrawn in view of the newly discovered reference(s) to Gulett (US/4,075,367) and Ishimaru (JP/05152200). Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 10-12 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Ishimaru (JP/05152200).

Re claim 10, Ishimaru discloses a method for fabricating an organic thin film comprising the steps of: forming an undercoating film made of silicon nitride or silicon nitride oxide on a substrate; irradiating far ultraviolet ray onto said undercoating film; and forming an organic thin

Art Unit: 2823

film on said undercoating film onto which far ultraviolet ray has been irradiated, by turning said substrate and supplying a liquid organic material onto said substrate; wherein said organic material contains at least one solvent selected from the group consisting of propylene glycol monomethyl ether acetate, propylene glycol monomethyl ether, ethyl lactate, methyl methoxy propionate, ethyl ethoxy propionate, 2-heptanone, ethyl pyruvate, diethylene glycol monomethyl ether, methyl cellosolve acetate, propylene glycol monoethyl ether acetate, ethyl methoxy propionate, methyl lactate and methyl pyruvate (see DRAWING 1, ASTRACT and EXAMPLE).

Re claim 11, as applied to claim 10 above, Ishimaru discloses all the claimed limitations including the limitation wherein said step of irradiating far ultraviolet ray includes a step of heating said substrate (see DRAWING 1, ASTRACT and EXAMPLE).

Re claim 12, as applied to claim 10 above, Ishimaru discloses all the claimed limitations including the limitation wherein a total amount of said liquid organic material used in the step of forming said organic thin film is at least 0.8ml (see DRAWING 1, ASTRACT and EXAMPLE).

Re claim 17, as applied to claim 10 above, Ishimaru discloses all the claimed limitations including the limitation wherein said organic material is an organic material of low viscosity (see DRAWING 1, ASTRACT and EXAMPLE).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-5 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gulett (US/4,075,367) in view of Ishimaru (JP/05152200).

Re claim 1 Gulett discloses a method for fabricating an organic thin film comprising the steps of forming an undercoating film made of silicon nitride or silicon nitride oxide on a substrate; wet-cleaning said undercoating film using a cleaning liquid; and supplying a liquid organic material onto said substrate (see Gulett Fig. 1).

However, Gulett does not disclose irradiating far ultraviolet ray onto said on said undercoating film onto which far ultraviolet ray has been irradiated by turning the substrate

Ishimaru discloses irradiating far ultraviolet ray onto the silicon nitride layer (i.e., on undercoating film) in order the reform (fix) the damage on the film during the cleaning process (see Gulett Fig. 1 and Ishimaru Abstract)

Therefore, it would have been obvious to one having ordinary skill in the art at the time of applicant(s) claimed invention was made to have provided Gulett reference with irradiating of the silicon nitride (undercoating film) as taught by Ishimaru because the far ultraviolet ray

would have cure the damage on the silicon nitride layer that was occurred during cleaning process.

Re claim 2, as applied to claim 1 above, both Gulett and Ishimaru in combination disclose all the claimed limitation including the limitation wherein said step of wet-cleaning includes the step of applying ultrasonic wave in said cleaning liquid (see Gulett Fig. 1 and Ishimaru Abstract).

Re claim 3, as applied to claim 1 above, both Gulett and Ishimaru in combination disclose all the claimed limitation including a step of forming another organic thin film on said undercoating film and then removing this organic thin film between the step of depositing said undercoating film and the step of wet-cleaning (see Gulett Fig. 1 and Ishimaru Abstract).

Re claim 4, as applied to claim 1 above, both Gulett and Ishimaru in combination disclose all the claimed limitation including the limitation wherein said step of irradiating far ultraviolet ray includes a step of performing heat treatment on said substrate (see Gulett Fig. 1 and Ishimaru Abstract).

Re claim 5, as applied to claim 1 above, both Gulett and Ishimaru in combination disclose all the claimed limitation including the limitation wherein a total amount of said liquid organic material used in the step of forming said organic thin film is at least 0.8ml (see Gulett Fig. 1 and Ishimaru Abstract).

Re claim 14, as applied to claim 1 above, both Gulett and Ishimaru in combination disclose all the claimed limitation wherein said organic material is an organic material of low viscosity (see Gulett Fig. 1 and Ishimaru Abstract).

Art Unit: 2823

7. Claims 6-9 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishimaru (JP/05152200) in view of Gulett (US/4,075,367).

Re claim 6, Ishimaru discloses a method for fabricating an organic thin film comprising the steps of: forming an undercoating film made of silicon nitride or silicon nitride oxide on a substrate; and forming an organic thin film on said undercoating film by turning said substrate and supplying a liquid organic material onto said substrate wherein said organic material contains at least one solvent selected from the group consisting of propylene glycol monomethyl ether acetate, propylene glycol monomethyl ether, ethyl lactate, methyl methoxy propionate, ethyl ethoxy propionate, 2-heptanone, ethyl pyruvate, diethylene glycol monomethyl ether, methyl cellosolve acetate, propylene glycol monoethyl ether acetate, ethyl methoxy propionate, methyl lactate and methyl pyruvate

However, Ishimaru does not specifically disclose wet-cleaning said undercoating film using a cleaning liquid.

Gulett disclose wet-cleaning of the silicon nitride film (i.e., the undercoating film) in order to clean the surface of silicon nitride (see Fig. 1) in order to proved a better adhesion the silicon nitride and resist film (see Gulett Col. 2, lines 13-35).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of applicant(s) claimed invention was made to have provided Ishimaru reference with wet-cleaning of the silicon nitride (undercoating film) as taught by Gulett because the process would have utilized to clean the silicon nitride (i.e., undercoating) film surface in order to provide in order to proved a better adhesion the silicon nitride and resist film.

Art Unit: 2823

Re claim 7, as applied to claim 6 above, both Ishimaru and Gulett in combination disclose all the claimed limitation including the limitation wherein said step of wet-cleaning includes the step of applying ultrasonic wave in said cleaning liquid

RE claim 8, as applied to claim 6 above, both Ishimaru and Gulett in combination disclose all the claimed limitation including the step of forming another organic thin film on said undercoating film and then removing this organic thin film between the step of forming said undercoating film and the step of wet-cleaning.

Re claim 9, as applied to claim 6 above, both Ishimaru and Gulett in combination disclose all the claimed limitation including the limitation wherein a total amount of said liquid organic material used in the step of forming said organic thin film is at least 0.8ml.

Re claim 16, as applied to claim 6 above, both Ishimaru and Gulett in combination disclose all the claimed limitation including the limitation wherein said organic material is an organic material of low viscosity.

Allowable Subject Matter

8. Claims 13 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

9. **THIS ACTION IS MADE NON-FINAL.**

Correspondence


10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brook Kebede whose telephone number is (703) 306-4511. The examiner can normally be reached on 8-5 Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on (703) 306-2794. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Brook Kebede


August 8, 2003


W. DAVID COLEMAN
PRIMARY EXAMINER